SPECIFICATION FOR METAL OXIDE LIGHTNING ARRESTORS

1.0 SCOPE

This specification covers metal oxide lightning arrestors for use in effectively earthed systems with nominal voltage of 11KV.

2.0 APPLICABLE STANDARDS

The lightning arrestors shall conform to stipulations made in IEC 600994 and IS-3070 (Part-3)-1993.

3.0 RATED VOLTAGE

The rated voltage of arrestors shall be 9.6KV. These ratings are for effectively earthed systems.

4.0 NOMINAL DISCHARGE CURRENT RATING

The nominal discharge current rating of arrestors for 11K V system is 200A.

5.0 **LONG** DURATION **CURRENT IMPULSE WITHSTAND LEVELS**

The 9.6 KV arrestors shall withstand 18 impulses of long duration current with a peak current level of 75 Amps, and Virtual duration 1000 Micro-seconds. .

6.0 PROTECTIVE LEVELS

These arrestors shall meet the following maximum protective levels.

Maximum residual voltage at nominal discharge current (peak)	32 K.V
Maximum steep current impulse residual voltage at nominal discharge current (peak)	38 K.V

7.0 TERMINAL ARRANGEMENT

The top metal cap and the base of the lightning arrestors have to be galvanised. The line terminal shall have a built-in-spring device which can be adjusted for both horizontal and take off to suit Rabbit ACSR. The base of the lightning arrestors shall be provided with two separate terminals distinctly marked for connection to earth.

8.0 SEALING

The arrestors shall be hermetically sealed to avoid ingress of moisture. Suitable rubber gaskets with effective sealing should be used. Manufacturers should devise a suitable means of production testing to verify the efficacy of sealing.

9.0 DISCONNECTION DEVICE

The arrestors for 11KV system may be provided with a suitable disconnecting device. This shall be connected in series with the lead and should not affect the sealing system of the arrestors..

10.0 MOUNTING BRACKETS

The arrestors will be mounted by means of G.I. brackets. The brackets shall be hot dip galvanised and galvanisation shall conform to IS:4759-1996 and IS-6745/1972.

No. of dips and duration of each dip : 4 dips of 1 min, each Brackets are not required in case of polymeric housing lightning arrestors.

11.0 DETAILS OF THE SYSTEM FOR WHICH ARRESTORS ARE SERVICED

1)	Type of Mounting	: Brackets
2)	Nominal system voltage	: a) 11KV rms between phases
3)	Frequency	: 3 Ph 50 HZ
4)	Highest system voltage	: 12KV.
5)	a) System neutral connection	: Effectively grounded.
	b) Probability of loss of neutral connection to earth	: Remote
6)	Type of installation	: Outdoor
7)	Equipment to be protected	: distribution transformers and outdoor cable Sealing ends.
8)	Nominal discharge current	: 5000 Amps.

12.0 TESTS

12.1 **Type Tests**

a) Insulation withstand test
b) Residual voltage test
c) Long Duration Current impulse withstand test
d) Operating duty test
e) Test for Arrester disconnectors
f) Temperature cycle test on porcelain housing
g) Porosity test for porcelain components.
h) Galavanising test on exposed metal parts.
i) Visual examination.

12.2 **Acceptance test :** The following tests shall be done on the nearest lower whole number to the cube root of the number of arrestors to be supplied.

a) Power frequency reference voltage test at reference current on complete arrestors.
b) Partial discharge test lightning impulse residual voltage test at nominal discharge current on complete arrestors.
c) Galvanising test on exposed metal parts.
d) Visual examination and dimensional verification.

12.3 **Routine Tests :**

a) Measurement of the reference voltage on the complete arresters.
b) Residual voltage test at nominal discharge current on the complete arrests or sections.
c) Partial discharge test to verify the efficacy of sealing.
d) Visual examination and dimensional verification.

13.0 INSPECTION AND TESTS

13.1 All tests and inspection shall generally be made at the place of manufacture. The manufacturer shall afford the inspector (representing BESCOM) all reasonable facilities without charge to satisfy him that the material is supplied in accordance with this specification.

13.2 BESCOM has the right to have the tests carried out at its own cost by an independent agency, if considered necessary.

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